

Research Project: Sustainability Indicators & Impacts: Ecological Footprinting.**Researchers:** Dr Andrea Collins, Dr Andrew Flynn, Prof Max Munday, Dr Alan Netherwood (Visiting Scholar),

Background: A number of approaches have been developed to allow policy makers and businesses to measure the environmental and social impacts of their activities. One approach to measuring environmental impacts is the Ecological Footprint which calculates how much land equivalent we are using to support our resource consumption compared to how much land is actually available. The Ecological Footprint is measured in a standardised area unit equivalent to a world average productive hectare or ‘global hectare’ and is usually expressed as global hectares per person (One hectare being roughly equivalent to a football pitch). There is a limited amount of land on the planet to provide for all human resource demands – estimated by WWF to be 1.8 global hectares per person. However, the world’s population is currently using 2.2 global hectares per person indicating an unsustainable ‘overshoot’ where the world’s resources are being used faster than they can be regenerated. Ecological footprinting is a relatively new, rapidly evolving, and at times controversial approach to understanding sustainability impacts, and BRASS research work has contributed both to its development and to an understanding of its use and implications.

Aims & objectives:

- To contribute to the development and use of ecological footprinting as an approach to measuring sustainability impacts;
- To seek out and test novel applications of footprinting methodologies;
- To understand how footprinting is used by policy makers and how the technique is evolving and being applied by different organisations internationally.

About the research: BRASS ecological footprinting research began in 2003 with a project funded by a Biffa Award, and involving key partners including the Welsh Government, WWF-UK, Environment Agency Wales, Stockholm Environment Institute and Cardiff and Gwynedd Councils. This aimed to develop an ecological footprint for Wales as a whole and two sub-regions including Cardiff as a city. BRASS researchers took the lead in the collection and analysis of the data for the Cardiff focussed element of the project to provide a robust environmental assessment of resource use for a capital city. The research involved officers from all 21 Council departments (including Economic Development, Waste Management, Transport, Tourism and Housing), and so developed a corporate understanding of resource impacts. This represented an innovative approach to footprinting because the engagement process developed for data collection and the disaggregation of results was framed around policy areas, making it context specific and reinforcing the resource use message. It was also the first time Council policy makers had a quantified measure of relative resource use impacts (i.e. significant and marginal impacts) within the City that they could link to activities and policy agendas (e.g. energy in the home, transport, tourism and waste).

This initial work was followed up by a longitudinal study (conducted 2005 to date) of how officers at Cardiff Council utilised or marginalised the Ecological Footprint findings. This enabled the research team to acquire a better understanding of how environmental knowledge is used in relation to other forms of knowledge (e.g. economic, transport & waste data). It also identified why certain professional groups and policy areas are more or less sympathetic to environmental messages, and why some actively reject environmental data in decision making. This longitudinal study has provided a much richer set of insights into how the framing of policy and its evidence base changes over time. BRASS has also sought to develop new and innovative applications of ecological footprinting methodologies. Much of this has been focused on the context of major sporting and cultural events management (see A25), but it has also enclosed the development of an urban development scheme (Cardiff’s International Sports Village), applying an eco-footprinting approach

to SMEs working in the Food & Drink sector, and by completing the research work for a draft water footprint for Wales.

Over time the Ecological Footprint has become more advanced in methodology, more standardised in its use internationally, and increasingly widely used as a tool for communicating resource use to a range of diverse audiences (all of which BRASS contributed to through the hosting of the first international academic conference on Eco-footprinting). A notable feature of Ecological Footprint work is that it has advocates across the globe who are highly networked, meaning that they can share common experiences and best practice. BRASS therefore undertook an online survey of Global Footprint Network partners in 2008 covering themes of partnership with GFN; ecological and carbon footprint activities, partners' thoughts on GFN; Network committees; suggestions on strengthening the Network; responses to partners' issues and concerns; communications; and partner involvement in other Network activities. In all 57% of Network members responded.

Results and outputs: The original research by BRASS generated a range of insights into the use of eco-footprinting. It provided a critical appreciation of how officers and councillors understand and use environmental knowledge in strategy development, and how they use that environmental knowledge alongside other forms of knowledge to inform decision making. The survey of GFN members showed that the growth in the GFN had helped to strengthen the identity of footprinting activity taking place at a national level, and provided an authoritative source of comment on footprinting matters. However the Network faced challenges due to the diversity of its membership and their different needs, skills and experience, and in finding effective ways to share that experience.

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Impacts achieved/potential for impact: BRASS work has helped to promote footprinting as an innovative engagement model for corporate strategy making which highlights the significance of resource use impacts in plans and policies, and has been adopted by *Cardiff Council*, *United Arab Emirates*, *Ministry of Environment* (Japan) and *Auckland Council* (New Zealand).